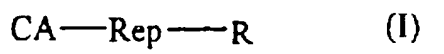
IN THE CLAIMS

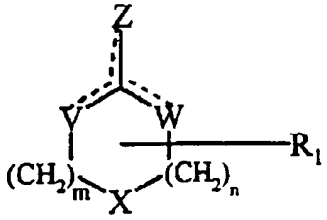
Claim 1. (Currently Amended) A compound, a stereoisomer of said compound, a salt of said compound or a salt of said stereoisomer, wherein said compound has a ~~Compounds, in D, L or DL form, and salts thereof, of~~ general formula (I):



$$CA—Rep—R \qquad (I)$$

for which:

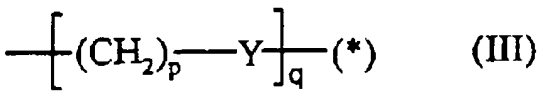
① CA represents a cycloamidine group and its mesomeric forms of general formula (II):



(II)

for which:

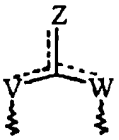
- m and n are integers, independent of each other, of between 0 and 3 inclusive and such that m+n is greater than or equal to 1,
- R_1 represents a group of general formula (III):



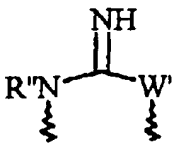
$$—[(CH_2)_p—Y]_q—(*) \qquad (III)$$

for which p and q are integers, independent of each other, of between 0 and 10 inclusive, Y represents a carbonyl, amino, methylamino or methylene group, ~~it being possible for~~ wherein Y need not be identical in each ~~to have different meanings within the different groups~~ $[(CH_2)_p\text{-}Y]$ group should $2 \leq q \leq 10$, and (*) represents either a hydrogen atom or is the site for bonding to the group Rep,

it being understood that R_1 may be bonded to any atom of general formula (II), including Z, and that there is a single group R_1 in formula (II),

- X represents a group NR_2 or CHR_2, R_2 being either a hydrogen atom or the bonding site for ~~to the group~~ R_1 ~~as defined above~~,
- wherein ~~The group~~  represents:

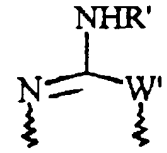
(a) ~~* 1st case:~~ a group of general formula(IV):



(IV)

for which W' represents CHR"'~~H~~ or NR"'~~H~~, and R' and R"'~~H~~ represent, independently of each other, a hydrogen atom, a methyl, or the bonding site for ~~to the group~~ R_1 as defined above, or

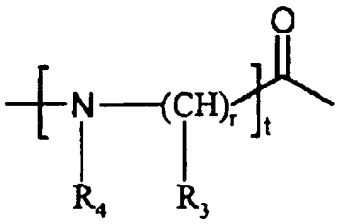
(b) ~~* 2nd case:~~ a group of general formula (V):



(V)

for which W' represents CHR"'~~H~~ or NR"'~~H~~, and R' and R"'~~H~~ represent, independently of each other, a hydrogen atom, a methyl or the bonding to the group R_1 as defined above,

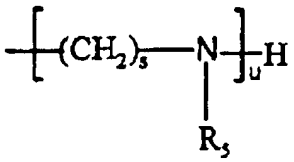
② Rep is absent or is a spacer of general formula (VI):



(VI)

~~whose~~ wherein the terminal nitrogen atom is attached to the atoms X, V, W or Z of general formula (II) when the compound comprises general formula (IV), or to the substituent Y of the group R_1 when the compound comprises general formula (V) ~~depending on the cases~~, and

- t is an integer between 0 and 8 inclusive,
- r is an integer between 0 and 10 inclusive, wherein ~~it being possible for~~ r need not have the same value in each ~~to have different meanings within the different groups~~ $-NR_4-(CH)_r-$ group should $2 \leq t \leq 8$,
- R_3, ~~which may have different meanings within the different groups $NR_4-(CH)_rR_3$,~~ represents a hydrogen atom, a methyl group or a group of general formula (VII):

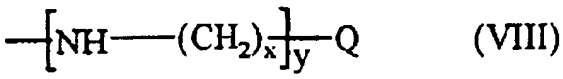


(VII)

for which u is an integer between 1 and 10 inclusive, s is an integer between 2 and 8 inclusive and need not have the same value in each ~~which may have different meanings within the different groups~~ $-(CH_2)_s-NR_5$ group of general formula (VII) should $2 \leq u \leq 10$, and R_5 is a hydrogen atom~~,~~ or a ~~group~~ CA group as defined above, wherein the CA group in each $-(CH_2)_s-NR_5$ group of general formula (VII) need not be identical should $2 \leq u \leq 10$, and wherein R_3 need not be identical in each $NR_4-(CH)_rR_3$ group of general formula (VI) should $2 \leq t \leq 8$ ~~it being understood that the groups CA are independent from each other and may be different, or a group of general formula (VII), it being understood that the groups of general formula (VII) are independent of each other and may have different meanings~~,
- R_4 is defined in the same manner as R_3 or is ~~represents~~ a ~~group~~ CA as defined above, wherein the CA of each $-NR_4-(CH)_r-$ group of general formula (VI) need not be identical should $2 \leq t \leq 8$ ~~it being understood that the groups CA are independent of each other and may be different~~, and

③ R is bonded to the carbonyl function of the group Rep of general formula (VI), or if Rep is absent, R is bonded directly to the ~~group~~ CA of general formula (I), and represents:

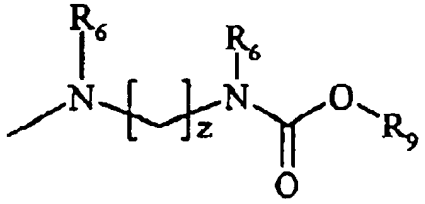
- either a group of formula NR_6R_7 for which R_6 and R_7 represent, independently of each other, a hydrogen atom or an optionally fluorinated, linear or branched, saturated or unsaturated aliphatic radical containing 1 to 22 carbon atoms, with at least one of the two substituents R_6 or R_7 is different from hydrogen and ~~the other~~ containing between 10 and 22 carbon atoms,
- or a steroid derivative selected from the group consisting of cholesterol, cholestanol, 3-α-5-cyclo-5-α-cholestan-6-β-ol, cholic acid, cholesteryl formate, cholestanyl formate, 3α,5-cyclo-5α-cholestan-6β-yl formate, cholesterylamine, 6-(1,5-dimethylhexyl)-3a,5a-dimethylhexadecahydrocyclopenta[a]cyclopropa[2,3]cyclopenta[1,2-f]naphthalen-10-ylamine, and cholestanylamine,
- or a group of general formula (VIII):



(VIII)

for which x is an integer between 1 and 8 inclusive, y is an integer between 1 and 10 inclusive, and either Q represents a group $C(O)NR_6R_7$ for which R_6 and R_7 are as defined above, or Q represents a group $C(O)R_8$ for which R_8 represents:

(a) a group of formula (IX):



(IX)

for which z is an integer between 2 and 8 inclusive, and R_9 is an optionally fluorinated, saturated or unsaturated aliphatic radical containing 8 to 22 carbon atoms, or a steroid derivative selected

from the group consisting of cholesterol, cholestanol, 3-α-5-cyclo-5-α-cholestan-6-β-ol, cholic acid, cholesteryl formate, cholestanyl formate, 3α,5-cyclo-5α-cholestan-6β-yl formate, cholesterylamine, 6-(1,5-dimethylhexyl)-3a,5a-dimethylhexadeca-hydrocyclopenta[a]cyclopropa[2,3]cyclopenta[1,2-f]naphthalen-10-ylamine, and cholestanylamine, and the two substituents R_6 are, independently of each other, as defined above, or

(b) ~~R_8 represents~~ a group -O-R_9 for which R_9 is as defined above.

Claim 2. (Currently Amended) The compound ~~Compounds~~ according to claim 1, wherein said R_1 ~~characterized in that the~~ group ~~R_1~~ is bonded ~~either~~: (a) to Z or to V, or (b) ~~on the one hand, and to the group Rep, on the other hand, via~~ to Y of general formula (III).

Claim 3. (Currently Amended) The compound ~~Compounds~~ according to claim 1, wherein the sum of m and n of general formula II is 1, 2, 3, or 4 ~~characterized in that the cycloamidine CA of formula (II) comprises 5, 6, 7 or 8 members~~.

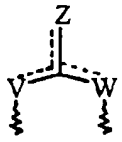
Claim 4. (Currently Amended) The compound ~~Compounds~~ according to claim 1, wherein ~~characterized in that~~

(a) R_3 ~~represents~~ is a hydrogen atom or a methyl, wherein R_3 need not be identical in each NR_4-$(CH)_tR_3$ group of general formula (VI) should $2 \leq t \leq 8$ ~~and R_4 is as defined in claim 1~~, ~~or~~

(b) R_3 is a hydrogen atom and R_4 is a hydrogen atom ~~present in formula (VI) represent hydrogen atoms~~, or

(c) R_4 is a hydrogen atom and R_3 is the ~~a~~ group of formula (VII) in which R_5 represents a group CA.

Claim 5. (Currently Amended) The compound ~~Compounds~~ according to claim 1,

~~characterized in that in formula (V),~~ wherein the group 

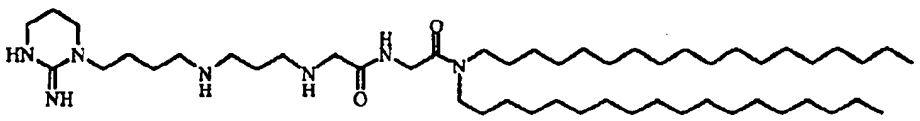
of the CA group of general formula I is formula V, and p and q of R_1 of the CA group are ~~chosen,~~ independently of each other, ~~from~~ 2, 3 or 4.

Claim 6. (Currently Amended) The compound ~~Compounds~~ according to claim 1, ~~characterized in that the groups~~ wherein R_6 and R_7 are identical or different, and each represents ~~represent~~ an optionally fluorinated, linear or branched, saturated or unsaturated aliphatic chain ~~chains~~ containing 10 to 22 carbon atoms.

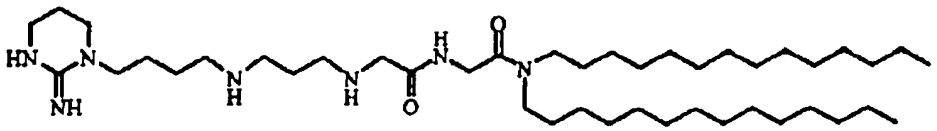
Claim 7. (Currently Amended) The compound ~~Compounds~~ according to claim 1, wherein ~~characterized in that the groups~~ R_6 and R_7 are identical or different, and each represents ~~represent~~ an optionally fluorinated, linear or branched, saturated or unsaturated aliphatic chain ~~chains~~ containing 12, 14, 16, 17, 18 or 19 carbon atoms.

Claim 8. (Canceled)

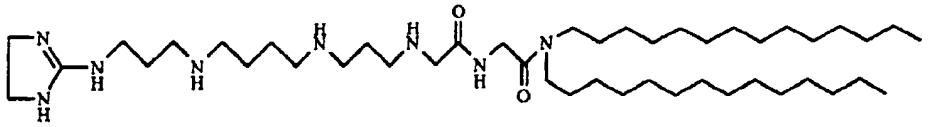
Claim 9. (Currently Amended) The compound ~~Compounds~~ according to claim 1, having a formula selected from the group consisting of ~~formulae~~:



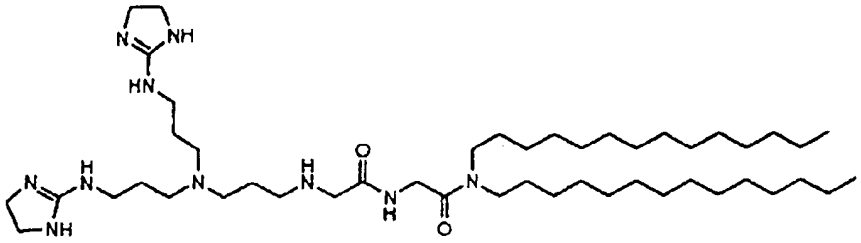
Compound (1)



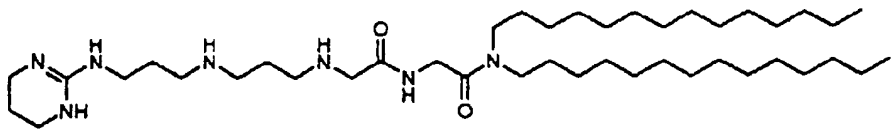
Compound (2)



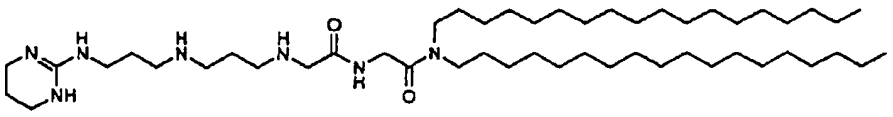
Compound (3)



Compound (4)



Compound (5) and



Compound (6)

Claim 10. (Currently Amended) A method for ~~Method of~~ preparing the compound ~~compounds~~ according to any of claims 1-9, comprising the steps of: ~~claims 1 to 9 in the~~

~~alternative, characterized in that the~~ (i) synthesizing ~~synthesis of the~~ building blocks carrying the cycloamidine function(s) ~~is carried out~~ and; ~~then these~~

(ii) grafting the building blocks ~~are grafted~~ onto lipids equipped with spacers.

Claim 11. (Amended) A method for ~~Method of~~ preparing the compound ~~compounds~~ according any of claims 1-9, comprising the steps of: ~~to claims 1 to 8 in the alternative, characterized in that the~~ (a) synthesizing ~~synthesis of the~~ analogous lipopolyamines ~~is carried out;~~ and ~~then the~~ (b) cyclizing the analogous lipopolyamines to form ~~cyclization into~~ cycloamidine groups ~~is carried out~~.

Claim 12. (Currently Amended) A composition comprising ~~Composition, characterized in that it comprises at least one~~ the compound of claim 1 and a nucleic acid, wherein contact between said compound and said nucleic acid forms a nucleolipid complex ~~general formula (1).~~

Claim 13. (Canceled)

Claim 14. (Currently Amended) The composition ~~Composition~~ according to claim ~~claims~~ 12 further comprising an adjuvant ~~or 13, characterized in that it comprises, in addition, one or more adjuvants~~.

Claim 15. (Currently Amended) The composition ~~Composition~~ according to claim 14, wherein said adjuvant is a neutral lipid ~~characterized in that the adjuvant(s) are one or more neutral lipids~~ containing two fatty chains.

Claim 16. (Currently Amended) The composition ~~Composition~~ according to claim 15, wherein said neutral lipid is a natural or synthetic lipid that is ~~characterized in that the neutral lipids are natural or synthetic lipids which are~~ zwitterionic or lacks an ~~lacking~~ ionic charge under physiological conditions~~, chosen for example from dioleoylphosphatidylethanolamine (DOPE), oleoylpalmitoylphosphatidylethanolamine (POPE), di-stearoyl, palmitoyl, mirystoylphosphatidylethanolamines as well as their derivatives which are N-methylated 1 to 3 times, phosphatidylglycerols, diacylglycerols, glycosyldiacylglycerols, cerebrosides (such as in particular galactocerebrosides), sphingolipids (such as in particular sphingomyelins) or asialo-gangliosides (such as in particular asialoGM1 and GM2)~~.

Claim 17. (Currently Amended) The composition ~~Composition~~ according to claim 14, wherein said ~~characterized in that the~~ adjuvant is a compound involved directly or otherwise in the condensation of the nucleic acid.

Claim 18. (Currently Amended) The composition ~~Composition~~ according to claim ~~claim~~ 17, wherein ~~characterized in that~~ said adjuvant is derived as a whole or in part from a protamine, a histone, or a nucleolin ~~and/or from one of their derivatives~~, or comprises ~~consists, as a whole or in part, of~~ peptide unit KTPKKAKKP (SEQ ID NO:1) ~~units (KTPKKAKKP (SEQ ID NO:1))~~ and/or peptide unit ATPAKKAA (SEQ ID NO:2) ~~(ATPAKKAA (SEQ ID NO:2)), it being possible for the number of units to vary between 2 and 10, and to be repeated continuously or otherwise~~.

Claim 19. (Currently Amended) The composition ~~Composition~~ according to claim ~~claims~~ 12 ~~to 18 in the alternative, characterized in that it contains, in addition, one or more~~

further comprising a nonionic surfactant ~~surfactant(s)~~ in a ~~sufficient~~ quantity sufficient to stabilize the size of a particle ~~the particles~~ of said nucleolipid complex ~~complexes~~.

Claim 20. (Currently Amended) The composition ~~Composition~~ according to claim ~~claims~~ 12 ~~to 19 in the alternative~~, further comprising ~~characterized in that it comprises~~ a vehicle ~~which is~~ pharmaceutically acceptable for an injectable formulation.

Claim 21. (Canceled)

Claim 22. (Currently Amended) The composition ~~Composition~~ according to claim 13, ~~characterized in that the~~ wherein said nucleic acid is a deoxyribonucleic acid or a ribonucleic acid.

Claim 23. (Currently Amended) The composition ~~Composition~~ according to claim 22, wherein ~~characterized in that the~~ said nucleic acid comprises an expression cassette consisting of one or more genes of therapeutic interest under the control of one or more promoters and of a transcriptional terminator which are active in the target cells.

Claims 24-25. (Canceled)

Claim 26. (Currently Amended) A method for ~~Method of~~ transferring a nucleic acid ~~acids~~ into a cell ~~cells,~~ comprising the ~~following~~ steps of:

(1) contacting ~~bringing~~ the nucleic acid ~~acids into contact~~ with the ~~a~~ compound of Claim 1 ~~general formula (1) as defined above,~~ to form a nucleolipid complex, and

(2) contacting ~~bringing~~ the cell ~~cells into contact~~ with the nucleolipid complex ~~formed in (1)~~.

Claim 27. (Currently Amended) The method of ~~Method of transferring nucleic acids into cells according to~~ claim 26, wherein the step of contacting the nucleic acid with the compound of Claim 1 comprising mixing the nucleic acid and/or the compound with an adjuvant, and then contacting the nucleic acid with the compound of Claim 1 ~~characterized in that the said nucleic acid and/or the said compound are previously mixed with one or more adjuvants~~.

Claim 28. (Currently Amended) A method for ~~Method of~~ treating a disease in an animal with a protein capable of correcting said disease, comprising the steps of: ~~diseases by~~

(a) contacting the compound of Claim 1 with ~~administration of~~ a nucleic acid molecule that encodes said ~~encoding a~~ protein, wherein said nucleic acid molecule is capable of being expressed, to form a nucleolipid, and ~~or which can be transcribed into a nucleic acid capable of correcting the said diseases, the said nucleic acid being combined with a compound of general formula (I)~~; and

(b) administering said nucleolipid to said animal so that said nucleic acid is expressed within cells of said animal to produce said protein in said animal.

Claim 29. (Canceled)

Claim 30. (New) The composition of Claim 16, wherein said neutral lipid is selected from the group consisting of a dioleoylphosphatidylethanolamine (DOPE), an oleoylpalmitoylphosphatidylethanolamine (POPE), a di-stearoyl, or -palmitoyl, -mirystoylphosphatidylethanolamine, a derivative of a di-stearoyl, or -palmitoyl,

-mirystoylphosphatidylethanolamine, wherein said derivative is N-methylated 1 to 3 times, a phosphatidylglycerol, a diacylglycerol, a glycosyldiacylglycerol, a cerebroside, a sphingolipid and a asialoganglioside.

Claim 31. (New) The composition of Claim 30, wherein said sphingolipid is a sphingomyelin.

Claim 32. (New) The composition of Claim 30, wherein said asialoganglioside is an asialoGM1 or an asialoGM2.

Claim 33. (New) A method for transfecting a cell *in vivo* in an animal with a DNA molecule, comprising the steps of:

(a) contacting the DNA molecule with the compound of Claim 1 to form a nucleolipid complex; and

(b) administering the nucleolipid complex to the animal.

Claim 34. (New) The method of Claim 33, wherein the administering step comprises administering the nucleolipid complex intramuscularly or intravenously to the animal.

Claim 35. (New) A method for inserting a protein into a cell *in vivo*, comprising the steps of:

(a) contacting a DNA molecule that encodes the protein with the compound of Claim 1 to form a nucleolipid complex;

(b) administering the nucleolipid complex to the animal such that the cell is transfected with the DNA molecule, and the protein is expressed within the cell.

Claim 36. (New) The method of Claim 35, wherein the administering step comprising administering the nucleolipid complex intramuscularly or intravenously to the animal.